

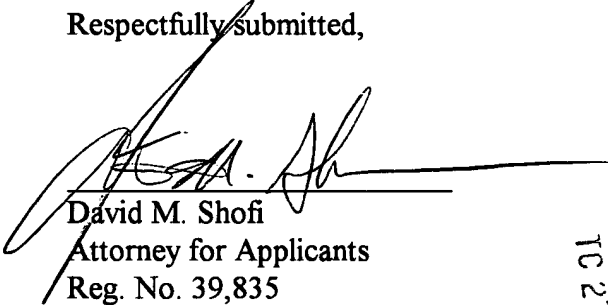
REMARKS

As filed, the present application included two claims identified as claim 33. The first instance of claim 33 has been canceled and is now identified as new claim 41. Applicants enclose herewith a new set of pages 29-31 including the abstract page for the Examiner's benefit. The presently pending claims clearly point out and particularly claim the present invention.

Please charge any deficiencies in fees and credit any overpayment of fees in connection with this response to Assignee's Deposit Account No. 09-0468.

Respectfully submitted,




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30. A method of claim 1, further comprising the steps of:

integrating the relationship information from the multiple heterogeneous sources using a graph wherein each node represents a communication entity, and a link between a pair of nodes represents the existence of a communication relationship between the two nodes.

31. A method of claim 30, further comprising the step of labeling each link with a communication intensity vector, where each dimension of the communication intensity vector represents a communication intensity from an information source.

32. A method of claim 12, further comprising the step of calculating aggregate communication intensities taking into account the indirect relationship.

~~33.~~ A method of claim 3, further comprising the step of obtaining relevant information from the heterogeneous information sources, said information selected from the group consisting of one or more of: phone numbers; e-mail addresses; mailing addresses; office location; department; or manager, from various information sources.

34. A method of claim 7, further comprising the step of calculating a communication intensity based on a number of communication events.

35. A method of claim 7, further comprising the step of calculating a communication intensity based on both a number of communication events and their temporal characteristics.

36. A method of claim 7, further comprising the step of calculating a communication intensity based on an analysis of a content of a communication event.

37. A method of claim 3, further comprising the step of modifying the query to create one or more sub-queries.

38. A method of claim 37, further comprising the step of aggregating results from the sub-queries.

39. A method of claim 37, further comprising the step of excluding results from the sub-queries

40. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for optimize information retrieval based on communication relationships, said method steps comprising:

extracting and integrating relationship information from multiple heterogeneous information sources;

building and storing a data structure to represent the relationship information; and
modifying a query based on the relationship data structure.

41. A method of claim 2, further comprising the step of prioritizing and filtering a list of name-to-e-mail address mappings to facilitate sending e-mail.

Optimization of System Performance Based on Communication Relationship

Abstract

A method and apparatus for optimizing information-retrieval related system performance based on users' communication relationships. Users' interactions and relationships with each other are tracked by a 'relationship analyzer' that queries multiple heterogeneous information sources, such as e-mail logs, organization charts, calendar entries, phone logs, etc. A data structure is created for each user reflecting the intensity of communication relationship with other users, and modified over time as the data in the information sources change. A relationship group is defined based on the data structure and preference or importance ratings for each type of communication relationship that includes each user's group of highest-priority other users. A derived relationship group may also be defined based on high-priority users of a user's highest-intensity relationships. The relationship analyzer then acts as a proxy for user queries, and may modify queries and create persistent data stores or store the results of queries or sub-queries in order to improve system performance in a variety of ways: for example, to shorten retrieval time, to resolve missing or ambiguous results, to prioritize information for downloading to limited-resource computing devices, or to propagate updated information among closely related users. A way to derive a relationship group based on subject lines of communications, or other text-based content of communication-related information, is also described.